Customer Care Solutions
NMM-3 Series Transceivers

4 - Service Tools

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JBV-1 Docking Station and MJF-29 Adapter

The JBV-1 Docking Station has been designed for calibration and software update use.

The MJF-29 Docking Station Adapter makes signal connections to the phone. JBV-1 and MJF-29 are used as one unit.

JBV-1 main electric functions are:

- adjustable VBATT calibration voltage, current measurement limit voltage ”VCHAR”, current measurement calibration current ”ICHAR”
- adjustable ADC calibration voltage for BSI
- BSI calibration resistor
- FBUS signal routing to handset
- controlled via FBUS or USB
- Programming Pass / FAIL indication

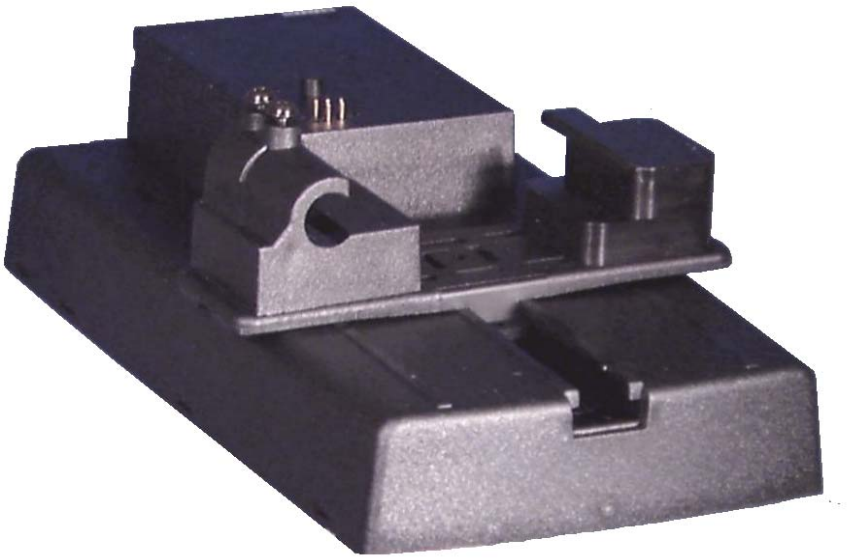
In calibration mode JBV-1 is powered by external supply set at 11-16V DC. During flashing power is supplied from the FPS-8 or FLS-4S.

Product Code

JBV-1	Docking Station:	0770298
MJF-29	Docking Station Adapter:	0770592

View of MJF-29

Figure 1: MJF-29



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MJS-84 Module Jig

The MJS-84 Module Jig is used for faultfinding and testing the following modules:

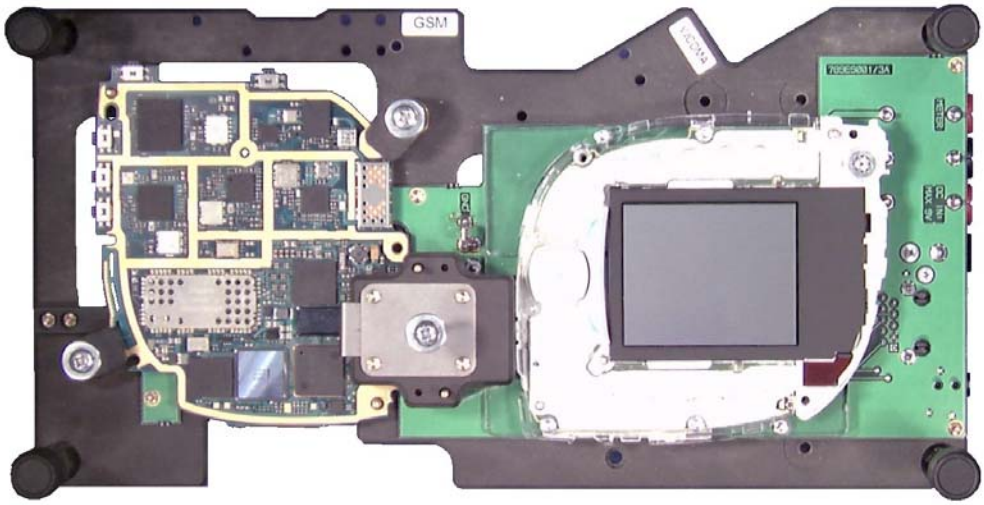
- User Interface
- Baseband and RF on system module

Product Code

MJS-84 Module Jig: 0770590

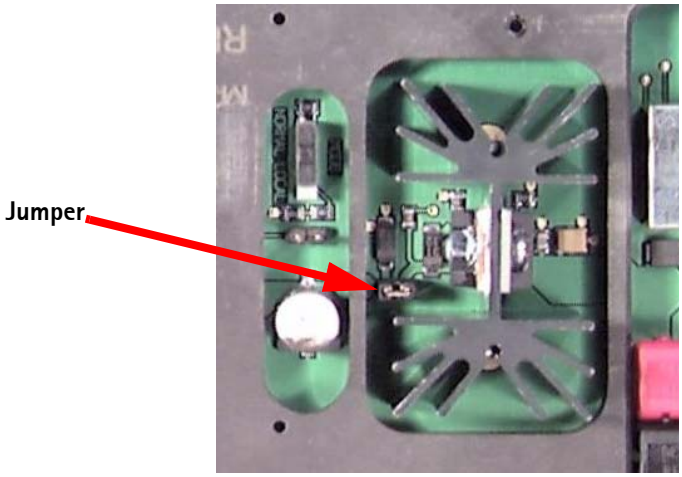
View of MJS-84

Figure 2: MJS-84



*Note: Power to the MJS-84 can be supplied in three ways; 5V to 9V connected to the jack or 'DC IN' banana socket or Vbat direct (3.2V to 4.2V) via the 'METER' connector (using this method the jumper must be removed otherwise excessive current will be drawn through the jig current sink. See Figure 3).

Figure 3:



A charger can be connected to the charger jack, ensure that the phone supply is connected to the 'DC IN' and that the jumper is also connected.

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MJS-85 Soldering Jig

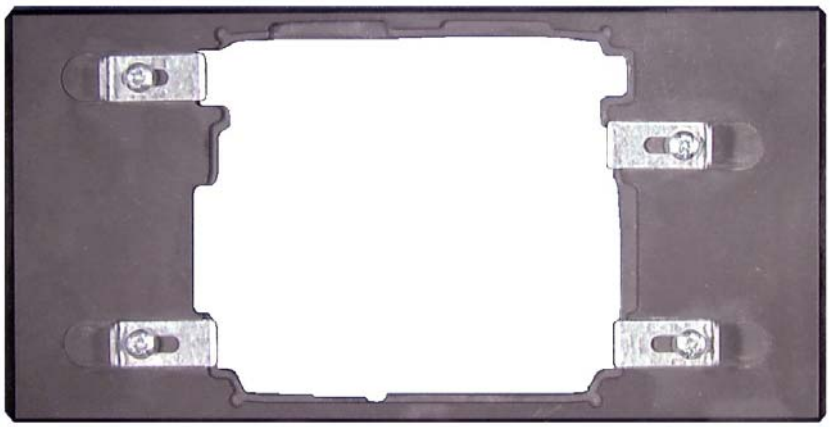
The Soldering Jig MJS-85 is used to support the engine module during soldering and rework.

Product Code

MJS-85 Soldering Jig: 0770591

View of MJS-85

Figure 4: MJS-85



SRT-6 Opening Tool

The Opening Tool is to assist in the mechanical disassembly of the NMM-3.

Product Code

SRT-6 Opening Tool: 0770431

View of SRT-6

Figure 5: SRT-6

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SRT-11 Camera Removal Tool

The Camera Removal Tool SRT-11 is used to remove the camera from its locking connector.

Product Code

SRT-11 Camera Removal Tool: 0770580

View of SRT-11

Figure 6: SRT-11

FPS-8 Flash Prommer (Sales Pack)

The FPS-8 Flash Prommer in conjunction with JBV-1 / MJS-84 is used for programming and updating the phone software. Power is supplied to FPS-8 from the Universal Power Supply.

The sales pack includes:	-	FPS-8 Flash Prommer	0750123
	-	FPS-8 Activation Sheet	9359289
	-	Universal Power Supply	0680032
	-	AXS-4 Service Cable (D9-D9)	0730090
	-	Printer cable	0730029

Sales package code

FPS-8 Flash Prommer: 0080321

View of FPS-8

Figure 7: FPS-8

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ACF-8 Universal Power Supply

The ACF-8 Universal Power Supply is used to power FPS-8, it provides 2.1A at 6V DC.

Product Code

ACF-8 Universal Power Supply: 0680032

View of ACF-8

Figure 8:

FPS-8C Parallel Flash Prommer (Sales Pack)

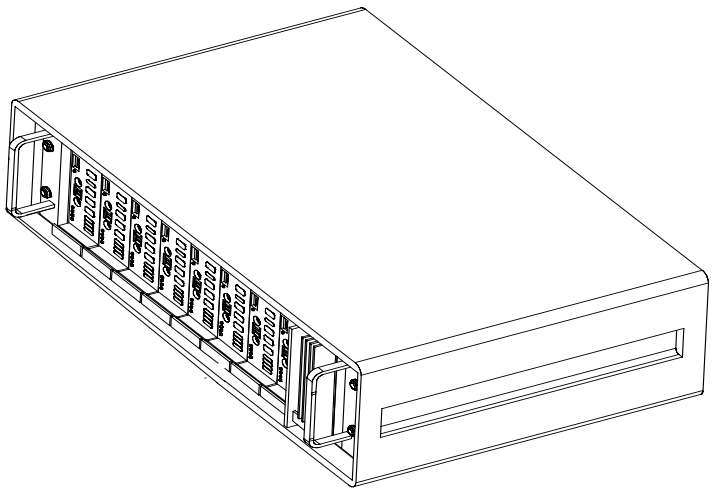
The FPS-8C Parallel Flash Prommer is used with the JBV-1 / MJS-84. A maximum of 8 phones can be flashed simultaneously. The FPS-8C consists of eight SF11C programming cards. SF11C card is functionally identical to FPS-8.

Sales package code

FPS-8C Parallel Flash Prommer: 0080396

View of FPS-8C

Figure 9: FPS-8C



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FLS-4S POS (Point Of Sale) Flash Adapter (Sales Pack)

The FLS-4S POS Flash Adapter connects to the PC parallel port, it is used in conjunction with the FLA-45 POS Flash Loading Adapter for programming and updating the phone software. Power is supplied to the FLS-4S from a ACF-8 Universal power supply.

The sales pack includes:

- FLS-4S Flash Dongle See below
- User Guide
- ACF-8 Universal Power Supply 0680032
- Device Driver software

Product Code

FLS-4S Sales Pack – Europe/Africa	0080541
FLS-4S Sales Pack –APAC	0080542
FLS-4S Sales Pack –Americas	0080543

View of FLS-4S

Figure 10: FLS-4S

FLA-45 POS (Point Of Sale) Flash Loading Adapter

The FLA-45 POS Flash Loading Adapter FLA-48 is used in place of the phone's normal battery during service. It supplies a controlled operating voltage and is connected to the FLS-4S when flash programming. Connection between the FLS-4S and FLA-45 is made using the VCS1 cable.

Product Code

FLA-45 POS Flash Loading Adapter:	0775340

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View of FLA-45

Figure 11: FLA-45

FLC-2 DC Cable

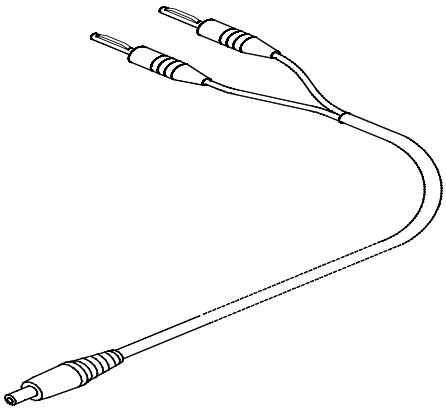
The FLC-2 is used to supply a controlled operating voltage to FLA-48 adapter.

Product Code

FLC-2 DC Cable: 0730185

View of FLC-2

Figure 12: FLC-2



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AXS-4 Service Cable

The AXS-4 D9-D9 Service Cable is used to connect two 9 pin D connectors e.g. between PC and FPS-8. Cable length is 2 meters.

Product code

AXS-4 D9-D9 Service Cable: 0730090

View of AXS-4

Figure 13: AXS-4

XCS-1 Service Cable

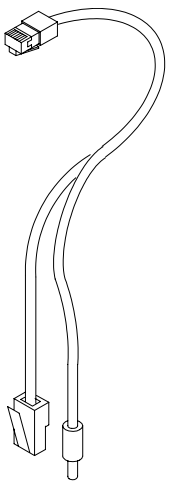
The XCS-1 Service Cable is used to connect FLS-4 to FLA-48.

Product code

XCS-1 Service Cable: 0730218

View of XCS-1

Figure 14: XCS-1



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SW Security Device PKD-1

SW security device is a piece of hardware enabling the use of the service software when connected to the parallel (LPT) port of the PC. Whithout the dongle present it is not possible to use the service software. Printer or any such device can be connected to the PC through the dongle if needed.

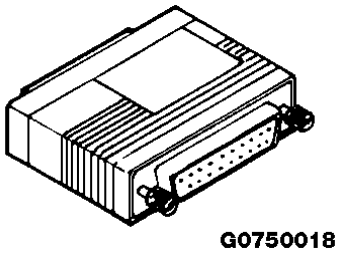
Caution: Make sure that you have switched off the PC and the printer before making connections!

Caution: Do not connected the PKD-1 to the serial port. Product Code

SW Security Device PKD-1: 0750018

View of SW Security Device

Figure 15: PKD-1



PCS-1 Power Cable

The PCS-1 Power Cable (DC) is used to connect e.g. JBV-1 or MJS-31 to FPS-8.

Product Code

PCS-1 Power Cable: 0730012

View of PCS-1

Figure 16: PCS-1

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CA-24RS RF Cable

RF cable CA-24RS is used to connect e.g. ..... to RF measurement equipment.

Product code

CA-24RS RF Cable: 0730315

View of CA-24RS

Figure 17: CA-24RS

TBD

XRF-1 RF Cable

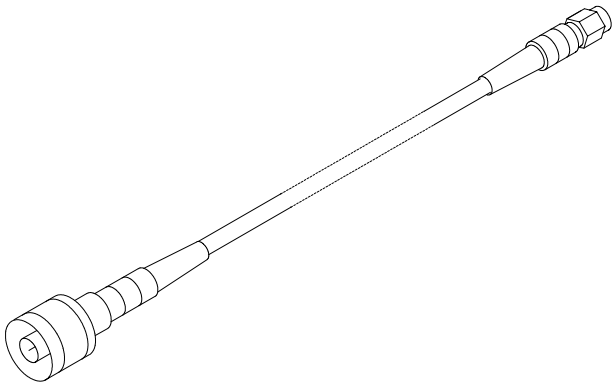
RF cable XRF-1 is used to connect e.g. MJS-51, CPL-5, TDS-10 or RA7 to RF measurement equipment..

Product code

XRF-1 RF Cable: 0730085

View of XRF-1

Figure 18: XRF-1



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DAU-9S MBUS Cable

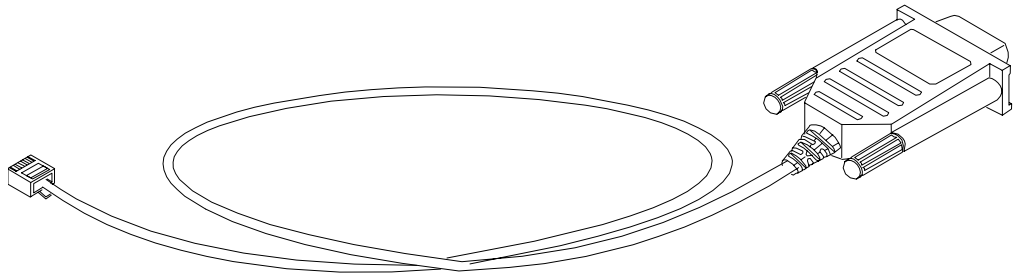
The MBUS Cable DAU-9S has a modular connector, and is used with between PC's serial port and e.g. MJS-51, FLA-48, or JBV-1

Product Code

DAU-9S MBUS Cable: 0730108

View of DAU-9S

Figure 19: DAU-9S



SCB-3 DC Cable

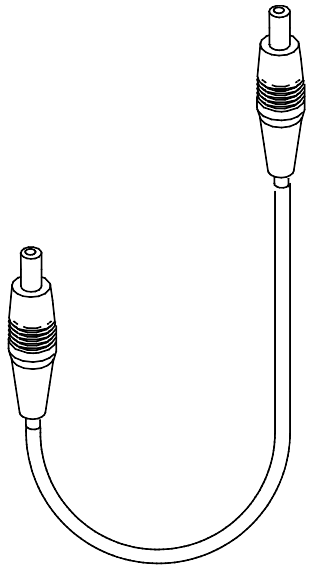
The DC Cable SCB-3 is used to connect e.g. JBV-1 to the phone.

Product Code

SCB-3 DC Cable: 0730114

View of SCB-3

Figure 20: SCB-3



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XCS-4 Modular Cable

XCS-4 is a shielded cable (one specially shielded conductor) modular cable for flashing and service purposes.

Product code

XCS-4 Modular Cable: 0730178

View of XCS-4

Figure 21: XCS-4

Printer Cable

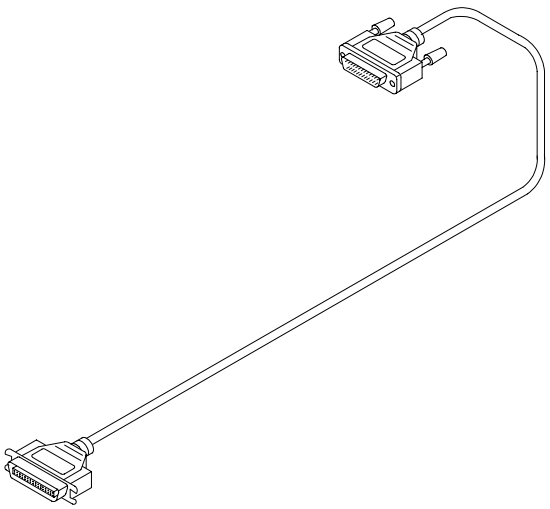
This cable is used to connect the PC to FPS-8.

Product code

Printer Cable: 0730029

View of Printer Cable

Figure 22: Printer Cable



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Appendix 4-A Guideline For First Lead Free Products

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1. Scope

This guideline is designed to be used in NMP manufacturing. It is the first guideline for lead free rework process for product programs. Specific work instructions must be created on the basis of this guideline. This document will be updated all the time.

Specifications, parameters and work methods are not described in this, so document follow other MES specifications.

2. SnPb / Pb Free Process

The paste used in the production process also defines the process. If a process makes use of paste that contains lead, it is called a normal process, whereas a process relying on lead free paste is called a lead-free process.

2.1 Pb (Sn62Pb36Ag2) Product

In rework, use is made of paste containing Pb, with Pb solder wire. The rework station uses the Pb-process profile.

2.2 Pb Free (Sn95.5Ag3.8Cu0.7) Product

In rework, only Pb-free paste, solder wire and Pb-free components are used. The rework station uses the Pb-free process profile.

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2.3 Mixed Component Product

This process uses Pb-free paste, but all components are not Pb free yet. In rework, Pb-free paste and Pb-free solder wire are used. The rework station uses the Pb-free process profile.

3. Rework Method

Rework methods are the same as in Pb-process. Components that cannot be repaired with soldering iron are repaired at the rework station. Rework station heating profile shall be made to each products and components.

Electromechanical components may be damaged if the temperature exceeds 260 °C.

NOTE: Reservations are made for project specific rework limitations.

4. Rework Material

Same fluxes and solder wicks can be used as in Pb-process.

Solder wires and paste shall be a lead free.

PASTE:

Paste	NMP code
Multicore Solders 96SCLF300AGS88.5	7600033

SOLDER WIRE:

Solder wire	NMP code
Multicore Solders Crystal 502 Ecosol TSC 96SC	Not available
Other diameter	Process ongoing

FLUXES:

Flux	NMP code
Multicore Multifix 450-01	7540021
Multicore MF-X33S07	7540019
Multicore Multifix 5ML/5CC for dispenser	7540023

SOLDER WICKS:

Wick	Diameters	NMP code
Multicore No Clean Desoldering Wick	0.5mm	7600023
Multicore No Clean Desoldering Wick	0.8mm	7600600
Multicore No Clean Desoldering Wick	1.5mm	7600601

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5. Rework Equipment and Tools

The same soldering irons and hot air guns can be used as in the Pb-process.

Studies are being made on the capability of rework stations approved for a process that contains lead (Zevac / Airvac, Metcal BGA 3000 series) to see how they perform in connection with the lead-free process.

(The performance of Zevac with a lead-free process would seem adequate. In the case of Metcal Series BGA 3000 equipment, minimum temperature may be the limiting factor.)

More info about tool requirements will be updated later on.

5.1 Manual Soldering Using Soldering Iron

Parameter	Specification
Tip diameter	Selected to fit application
Tip temperature for soldering SMD components	+380 °C ± 10 °C max. (tip temperature in idle mode, not in contact with soldering location) or: Metcal 700 Series soldering tip

5.2 Manual and Semi-automatic Hot Gas Soldering

Parameter	Specification
Max. air temperature/time measured at PWB surface	+260 °C/30 s

6. Rework Station Heating Profile

When creating the heating profile, the main requirement is that the profile meets the Pb-free reflow profile specifications. The shape and length of the profile might differ depending on component type (e.g. shields, big ground area).

All profiles shall fulfill the Pb Free Reflow Soldering Profile Specification.

Table 1: Process key parameter

Item	Specification
Melting point	217 °C
Time above 217 °C	35…60 s
Time above 230 °C	25…50 s
Peak temperature (Temperature between component and PWB)	232…250 °C
Component surface temperature	Max. 260 °C

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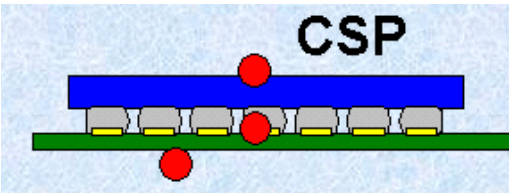
6.1 Profile Measurement Method on PWBs for Rework Station

Needed equipment: Product PWB, CSP component, 3 pcs. K-type thermocouples, data logger, e.g. Datapaq, glue or Kapton tape.

Thermocouples should be placed in 3 positions on product: one on top of component surface, one between component and PWB and one beneath the PWB.

To start, drill holes from beneath the PWB under the BGA . The temperature for the profile is measured using K-type thermocouple between the component and the PWB. Insert thermocouple probes through the hole *so* that the probe is properly located between the PWB and component.

To attach thermocouple to PWB surface (solder land) or on small component, use small amounts of high melting point solder. The melting point of the solder must be higher than 260 °C. To attach thermocouple on top of a component, use a small amount of appropriate, temperature resistant glue or heat resistant tape (Kapton).



Example of thermocouple attachment

6.2 Measuring procedure

- To start, adjust PWB with thermocouples to rework station and connect the thermocouple cables to datalogger.
- Choose right heating profile. Start profile and wait when profiling will end.
- Download information to Pc. Analyzed information and compare it against to specification.
- Make temperature adjustment in rework station if needed and repeat profile again.
- Analyzed information.

6.3 Sample Profile

The following profile is a made for an 6620 (RH-20) PA component and meets the specification requirements.

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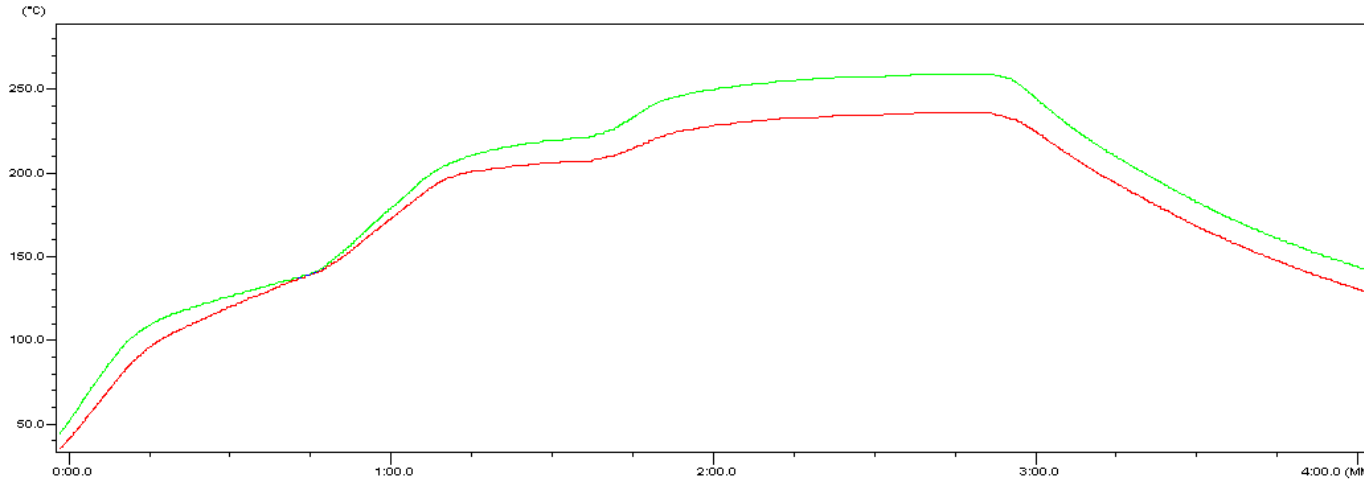

Max and Min Temperatures in °C	
Max Temp	Min Temp
237.0	35.5
260.0	43.5

Datapaq profile. Green (upper) profile is component surface temperature (max. 260 °C) and red (lower) profile is measured between component and PWB (max. 237 °C)

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